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CORRECTIVE THERAPY IN THE PSYCHIATRIC HOSPITAL

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From the viewpoint of a psychiatrist, corrective therapy may be expected to serve two purposes in the treatment of hospitalized psychiatric patients. One purpose is to improve or maintain optimum physical condition of the patient to the extent that can be accomplished through the medium of exercise and activity. The other purpose is to serve as a means of communication by which patients may express their thoughts and feelings.

The historical development of the mental hospital is reflected even today in its organization and administration. Large numbers of patients crowded into large buildings, limited money to provide for their care and limited numbers of staff members to care for them present grave problems in the treatment of psychiatric patients. Because many patients require the protection of a locked ward, there may be limited opportunity for physical activity. Physical deconditioning, with impairment of muscle tone and blood circulation, may result in a train of sequellae leading to infirmity. An experienced observer walking through a mental hospital can often tell what has been the activity program at that hospital for the previous several years by noting the numbers of bedridden patients, the extent of catatonia among the patients, swollen lower extremities, patients sitting in fetal position, or patients lying on the floor or under benches. Institution of therapeutic activity programs can reverse these conditions if applied in time before organic pathology has supervened.

The use of mechanical restraint for mental patients has had a variable course. In the Greek-Roman era, mental patients seemed to have had considerable freedom. In the Middle Ages, the mentally ill were chained and it was not until Pinel freed them in 1793 that a more enlightened approach appeared. In the past 150 years a humanitarian attitude has prevailed, but mechanical restraint is still in effect in varying degrees. Patients who are assaultive, suicidal, self-mutilating, or noisy often are placed in restraint or seclusion. This procedure does prevent these patients from carrying out their intent and does separate them from other patients, but one wonders how it helps the patients. There is little indication that restraint has any effect on the patients except to rouse hostility or fear. Patients show disturbed behavior as a symptom of great tension or anxiety or in acting out irrational ideas that anxiety may generate. Even if the patient's basic anxieties cannot be dealt with, if the patient is afforded an opportunity to vent his tension in motor release in a controlled environment, some therapeutic effect may be expected. The freedom afforded the patient communicates to him the attitudes of the staff, and the patient's actions in turn will communicate to the staff some of the patient's unverbalized feelings and thoughts.

There are a great many patients in the mental hospital who could be benefitted by application of corrective therapy. Yet, because the number of therapists is limited, priorities must be established. Examination of the statistical trends of the mental hospital population helps to define these priorities.

Recently the VA completed a study of the duration of hospitalization and readmission rates of a group of psychiatric and neurologic patients. The study was carried out by taking a 30-percent random sample of all admissions to VA hospitals in April 1948 for disorders of a psychiatric or neurologic type. This produced a group of 1621 individual patients who were then followed for a two-year period. It is interesting to find that of the patients admitted, 30 percent were psychotic, 33 percent were psychoneurotic, 17 percent had character and behavior disorders, and 15 percent had neurologic disorders. Two and one-half months later, 70 percent of these admissions had left the hospital, which included 86 percent of the psychoneurotic patients and 89 percent of the character and behavior disorder group. However, 66 percent of the psychotic patients were still hospitalized. One year after admission, 41 percent of the psychotic group were still hospitalized, whereas only 2 percent of the non-psychotic patients had been continuously in the hospital. Two years after admission, 8 percent of the 1621 original admissions had been continuously hospitalized and 99 percent of these patients were in the psychotic group.

Mention might be made of the neurologic patients. While 15 percent of the 1621 admissions were due to neurologic disorders, two months after admission, 75 percent of the group had left the hospital and one year later, 10 percent of the original neurologic group was still continuously hospitalized. Two years

Sponsored by the VA and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are a result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

after admission, 5 percent of the neurologic patients were still hospitalized.

These statistics indicate that the non-psychotic patients leave the hospital early. However, the psychotic group remain for indefinite periods and form the great bulk of the hospital population. In a typical VA hospital with a predominence of psychiatric patients, the distribution of patients according to their behavior characteristics is roughly as follows: 15 percent of the total patient population on the admission and intensive treatment service, 20 percent on the infirm service, 15 percent on the disturbed service, and about 40 percent on the continued treatment service. All hospitals have medical and surgical services of varying sizes, comprising from 5 percent to 15 percent of their total bed capacity. A tuberculosis unit for psychotic patients may increase this last percentage.

The 40 percent of the patients on the continued treatment service would not ordinarily require the services of a corrective therapist. They are the ambulatory, fairly quiet patients who have daily assignments to industrial therapy, occupational therapy, or the other rehabilitation therapies available in the hospital. There may be an occasional patient in this group for whom corrective therapy may be prescribed for a specific physical disorder. Also in the medical and surgical wards there may be prescriptions for corrective therapy for patients with specific disorders, as neurologic or orthopedic conditions. Neurologic patients especially deserve early consideration for corrective therapy. These patients are often helpless and require much nursing care. Every patient who can be gotten out of bed, helped to achieve self-care or taught to walk again, represents tremendous achievement.

The great area for work in corrective therapy in the psychiatric hospital, in my opinion, is with the disturbed and the infirm patients. The disturbed patients have been the greater focus of attention and with encouraging results as evidenced by the decreased use of hydrotherapy and restraint in our hospitals. Recently, during a visit I made to a hospital, there was considerable difficulty in unlocking the door of the hydrotherapy unit, so long had it been unopened. A number of our hospital managers point with pride to the total absence of restraint in their hospitals. There are few medical indications for restraint and often its application bespeaks limited knowledge and resourcefulness in the management of psychiatric patients.

Dr. John Eisele Davis for many years has been emphasizing how a patient may express his feelings through activity. This is particularly true of the disturbed patient who has adopted disturbed behavior as his language. Language is usually thought of as verbal expression; but Webster's dictionary says language may be "any means, vocal or other, of expression or communicating feeling or thought." One of the primary objectives of psychiatric treatment is the understanding of what is going on in the mind of the patient, whether it is expressed in assaultiveness, withdrawal, catatonia, a hysterical paralysis, or a migraine headache. Usually the patient himself does not understand why he is acting or feeling a certain way. The patient only knows that some inner feeling is making him act so. The success of those who work with psychiatric patients lies in their ability to understand the patient's communications, for then a therapist can properly evaluate the situation and institute appropriate measures.

How a therapist can learn to understand communications of patients is no easy matter. Some therapists by nature seem more sensitive and intuitive than other therapists, and for them the task is easier. Continuing study and observation are necessary for all therapists. In trying to understand the communications of patients, I have found it useful to ask myself constantly, "What is this patient accomplishing by his action?" or "What is he seeking to accomplish?" It is helpful to try to understand the patient's goal since the patient's behavior directed at achievement of the goal is often indirect and filled with symbolic distortions which may seem meaningless when removed from the context of the goal idea.

There is general acceptance of the premise that anxiety is the motor driving the disturbed patient to act. Efforts made by the patient to relieve his anxiety are invariably movements that lead to withdrawal from the situation or to attack of the situation. The former produces withdrawn behavior by which the individual seeks to protect himself, but withdrawal need not necessarily be a passive occurrence. Flight from a situation the patient considers dangerous can be a very active process. True, the catatonic is an extreme picture of withdrawal. He is like the turtle in his shell, immobile and protected by the armor of his tensed muscles. But there are many subtle methods of withdrawal by which a patient may act in such a way as to arouse a response from those who deal with him that will permit him to withdraw further. Think of the patient who is constantly griping. Those who are trying to work with him reach the point of saying "There's no pleasing that person. I'm fed up with him," and then proceed to avoid him in the future. So the patient's purpose of withdrawal is accomplished and his distorted behavior patterns continue. This raises the con-

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COOPERATE TO REHABILITATE

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Many volumes have been written on all phases of rehabilitation each extolling the benefits achieved by the therapy administered by the author's favorite section of Physical Medicine. These articles, as a whole, have been well written, subject matter well presented, and objectives well defined. By contrast, we wish to present a panoramic view of a complete Physical Medicine Rehabilitation Service at work as a team with but one thought in mind—benefit to the patient. We believe that we are making a major contribution to the overall treatment of the patient and that we are an important member of the team furnishing medical care second to none.

We are not attempting to establish policy, but are merely presenting the services covered, and some of the techniques and procedures used at this hospital. Believing that each of us can benefit from an exchange of ideas, we hope that you may find something constructive to add to the methods now in use by your own Physical Medicine Rehabilitation Service.

The Veterans Administration Hospital at Columbia, South Carolina, is a six hundred and nine bed general medical and surgical installation, operating under the direction of a Deans Committee with a teaching program in effect. The bed distribution is 256 general medical, 218 surgical, 56 neuropsychiatric, and 79 tuberculosis. A few of these beds are allocated for women patients.

A continuous training program for the Physical Medicine Rehabilitation personnel is conducted by the staff supplemented by the orthopedic consultants.

Keeping maximum benefit to the patient as our common goal, we find it impossible to adhere to strict definitions of the duties of the various sections. Where the prescribed treatments in Physical Therapy, Corrective Therapy, or Occupational Therapy seem to overlap, cooperation is of more importance than credit to an individual section. Here, it is the rule, rather than the exception, that the therapists of the several sections of the Physical Medicine Rehabilitation Service exchange ideas and work together in an honest effort to improve the over all treatment of the patient.

This cooperative teamwork, in evidence throughout the entire Physical Medicine Rehabilitation Service, is reflected in the interest shown in our work by management and medical staff. That sixty-eight percent of all patients admitted to the hospital are referred to one or more sections of the Physical Medicine Rehabilitation Service is ample proof of their interest and confidence.

Postoperative Early Ambulation

The value of our postoperative early ambulation program has been proved in terms of hospital bed days saved, as reported in an earlier article. However, authorities are not in accord concerning the necessity of using Physical Medicine Rehabilitation personnel to carry out this procedure.

At this hospital where every postoperative case is assigned to the Physical Medicine Rehabilitation Service for early ambulation or postoperative bed exercises, the Chief of the Surgical Service insists that our trained personnel administer the postoperative early ambulation prescriptions to insure that the surgeon's work will not be undone due to inefficient handling of these postoperative cases by inexperienced personnel.

In cases where early ambulation is contraindicated, a well outlined bed exercise program is carried on until such time as the patient is ready for ambulation. Since the adoption of this program, there has been not one incidence of postoperative thrombosis.

Cardiacs

Approximately three and one-half years ago, the Chief of the Medical Service and the Cardiologist, in cooperation with the Physical Medicine Rehabilitation Service personnel formulated a series of graduated exercises designed to meet the needs of the cardiac patient. These exercises are graded in classes from one through five and are prescribed by the Cardiologist according to his knowledge of the patient's tolerance. The patient's respiration and pulse are checked before, during, and after the exercises, and recorded on the patient's treatment form. Any changes from the normal are reported immediately to the Cardiologist. All changes in class of exercise or increase in repetitions are on a strict prescription basis. As the patient improves, these exercises are supplemented on prescription by Occupational Therapy, Manual Arts Therapy, and Educational Therapy, to test and improve the patient's work tolerance.

COOPERATE TO REHABILITATE

In many cardiac cases rest has been prescribed unnecessarily, forcing the patient to a life of invalidism when he is capable of considerable activity. Naturally, where there is any great degree of cardiac decompensation, rest is essential, but in selected cases of cardiac disease, improvement can be obtained by the application of properly selected and supervised exercises. If a cardiac patient shows no signs of circulatory embarrassment or dyspnea, mild exercises usually are beneficial. Barr was quoted as saying, "In both normal persons and cardiac patients, dyspnea is the greatest safeguard against the possibility of heart strain and cardiac failure." It must be remembered that the tolerance to exercise of cardiac cases may vary from day to day, therefore, a very careful check must be kept and recorded on the patient's reaction to exercise.

Remember that in all cardiac cases, exercise routines must be employed with caution, as over-exercise may precipitate hemorrhage, loosen emboli, or induce similar disastrous results, if administered injudiciously.

The following cardiac routines are used at this hospital with very gratifying results, and it is the concensus of opinion that hospital bed days have been considerably reduced since the Cardiac Exercise Program was initiated. Due to this program the patient does not become debilitated, and when his cardiac condition permits, he is physically able to ambulate and, therefore, can return to his home and work much sooner than would be possible had he remained on a strict bed rest routine.

Medically Prescribed Exercises as to Groups

Group 1 Mild Active Sports
Group 2 Milder Sports Plus Class III
Group 3 Class III Exercise Routine
Group 4 Class IV Exercise Routine
Group 5 Class V Exercise Routine
Group 6 Relaxation and Bed Posture

Patients whose tolerance warrants their inclusion in Group 1 or 2 are referred to the clinic for therapy.

When routines for Class 3, 4, or 5 are prescribed coordination should be the first consideration. It is quite simple to inhale on effort, as that is the normal procedure, but to exhale on effort as is recommended in these exercises, is not normal. Therefore, the patient must first be taught to coordinate his breathing with his exercises.

When using the exercises:

(1) Have the patient learn exercises by name
(2) Exercise at slow cadence
(3) Move slowly from the lying, to sitting, to standing position
(4) Perform them in the order prescribed
(5) Take sufficient rest between exercises
(6) Stop at any sign of shortness of breath
(7) Stop or rest if pulse increase is above 20 counts
(8) Keep record of his daily progress
(9) Keep pulse chart for ward Medical Officer and your records
(10) To be done when the ward Medical Officer allows patient to exercise. The number of repetitions for each exercise will be prescribed by the ward medical officer

Class III Exercises

Recommended repetitions 6 to 8

EXERCISE 1 Eight count breather

Position:

Standing, hands on abdomen

Action:

1. Exhale in four counts, pushing out more air each time
2. Inhale in four counts, attempting to inhale more on each count

EXERCISE 2 Finger stretcher

Position:

Attention, standing

Action:

1. Clasp fingers tightly and stretch them as far as possible, repeating three times, then gripping fingers, rising high on toes. Recover
2. With arms forward, repeat three times. Repeat on toes.
3. With arms sideward, repeat three times. Repeat on toes
4. Recover

EXERCISE 3 Knee Puller

Position:

On back, arms at side

Action:

1. Pull left knee hard to chest, exhaling fully
2. Recover, inhaling moderately
3. Repeat, with right knee
4. Recover, inhaling moderately

EXERCISE 4 Chest expander

Position:

Erect, fingers laced behind head

Action:

1. Raise chest high and inhale, pulling head backward against hands, elbows back
2. Recover and exhale

EXERCISE 5 Sit and touch

Position:

On back, feet separated about two feet, hands on on crest of pelvis

Action:

1. Raise head and shoulders from mat, touching right hand to left knee, slightly raising straight left leg. *Exhale* on effort
2. Recover and *inhale*
3. Repeat to opposite side
4. Recover and *inhale*

EXERCISE 6 Knee bend and curl

Position:

Attention, standing

Action:

1. Full knee bend, flexing elbows, hands just in front of shoulders. *Exhale on downward movement*
2. Recover and inhale

EXERCISE 7 Prone leg-raising

Position:

Prone, head supported on hands with elbows flexed

Action:

1. Raise left leg backward with knee straight and exhale
2. Recover and inhale
3. Repeat with right leg
4. Recover and inhale

EXERCISE 8 Turn and bend

Position:

Side straddle, arms at the side shoulder level

Action:

1. Turn trunk to left and bend, touching hands to ground outside of left, and *exhale*
2. Recover and *inhale*
3. Repeat to opposite side
4. Recover and *inhale*

EXERCISE 9 Stationary walk

Position:

Attention, standing

Action:

1. Execute first step of stationary walk, lifting right knee to hip height and swinging arms normally and inhale
2. Execute second step, raising left knee, continuing to inhale

3-4 Repeat but exhale for the two counts. Try to work up this exercise into an easy jog of about one minute's duration exhaling freely throughout

EXERCISE 10 Imaginary press and pull

Position:

Erect, arms flexed forward and palms forward and up as though supporting a heavy object at the shoulders

Action:

1. With knees slightly bent go through the action of pushing heavy weight over head and *exhale*
2. Reverse position of hands and do an imaginary pull up, finishing with fists clenched in front of chest and *inhale*

Conditioning Exercises for Class IV Cardiac Patients

Recommended repetitions: 4-6

EXERCISE 1 Back-flattener

Position:

On back, knees partially drawn up, arms at side

Action:

1. Exhale slowly and draw abdomen inward fully
2. Recover
3. Inhale slowly and raise chest as high as possible pressing slightly with arms against bed
4. Recover

EXERCISE 2 Chest expander

Position:

On back, arms forward

Action:

1. Inhale deeply as arms move to side shoulder level
2. Recover, exhaling fully

EXERCISE 3 Hip swing

Position:

On back, fingers laced behind head, feet drawn up near hips about one foot apart

Action:

1. Lift hips, swing them far to the right and *exhale*
2. Recover and *inhale*
3. Lift hips, swing them far to the left and *exhale*
4. Recover and inhale

EXERCISE 4 Toe pointer

Position:

On back, arms at side

Action:

1. With legs straight, flex feet toward body (dorsiflexion) and exhale
2. Stretch toes away from body (plantar flexion) and inhale

EXERCISE 5 Flexor knee

Position:

On back, arms at side

Action:

1. Flex left knee, exhaling fully
2. Recover, inhaling moderately
3. Repeat with right knee
4. Recover inhaling moderately

EXERCISE 6 Wing flapper

Position:

On back, arms at side

Action:

1. Flex and extend wrists hard four times with arms at sides
2. With arms forward, repeat

3. With arms sideward, repeat
4. Recover

EXERCISE 7 Abdominal curl (with variations)

Position:

On back, arms at side, feet under covers

Action:

1. Sit up until fingers touch knees and *exhale*
2. Recover and inhale

EXERCISE 8 Breaking chains

Position:

On back, elbows raised sideward off the bed, fists clenched in front of shoulders

Action:

1. Pull elbows back hard, pressing hard against the bed and exhale
2. Relax and inhale

EXERCISE 9 Kick and stretch

Position:

Lying on right side with right hand supporting head

Action:

1. Swing left leg forward along the bed as left arm is swung to the rear and exhale
2. Recover and inhale

EXERCISE 10 Rib stretcher

Position:

On back, knees fully bent, hands at sides of bed about one foot from sides of body

Action:

1. Left chest, stretching far to left
2. Recover
3. Arch back and raise chest high
4. Recover

Note:—On second repetition lift chest to right. On third repetition to left, and so on.

Conditioning Exercises for Class V Cardiac Patients

Recommended repetitions: 3-5

EXERCISE 1 Eight count breather

Position:

On back, hands on abdomen

Action:

1. Exhale in four counts, pushing out more air each time
2. Inhale in four counts, attempting to inhale more each count

EXERCISE 2 Active motion—Toe pointer

Position:

On back, arms at sides

Action:

1. With legs straight, flex feet toward body (dorsi-flexion) and exhale
2. Stretch toes away from body (plantar-flexion) and inhale

EXERCISE 3 Active motion—knee flexion

Position:

On back, arms at sides

Action:

1. Flex knees keeping heels on bed and exhale
2. Extend knees keeping heels on bed and inhale

EXERCISE 4 Back flattener

Position:

On back, arms at sides

Action:

1. Exhale slowly and draw abdomen in fully
2. Recover
3. Inhale slowly raising chest, pressing slightly with arms against bed
4. Recover

EXERCISE 5 Passive motion—single straight leg raising

Position:

On back, arms at sides

Action:

1. Passive raising of left leg and exhale
2. Recover and inhale
3. Passive raising of right leg and exhale
4. Recover and inhale

EXERCISE 6 Chest expander

Position:

On back, arms to side

Action:

1. Grip fingers tightly and exhale
2. Extend fingers fully and inhale

EXERCISE 8 Toe gripper

Position:

On back, arms at side

Action:

1. Grip toes hard and exhale
2. Extend toes fully and inhale

EXERCISE 9 Breather

Position:

On back, arms at side

Action:

1. Raise arms to shoulder level and exhale
2. Recover and inhale

Asthmatics

During the past four years, a total of 347 asthmatic cases have been admitted to this hospital. Of this number 209 have been referred to the Physical Medicine Rehabilitation Service for asthmatic breathing exercises to increase vital capacity. Most cases treated have shown some degree of increase in vital capacity, and some of those patients who have been continuously following their breathing exercise routine at home, remained out of the hospital.

The following breathing exercise routine is used at this hospital:

Breathing Exercises

Nasal Passages Cleared

I. Gentle inspiration followed by a *prolonged* expiration through mouth. (S or F) sound made as long as possible.

The upper portion of the thorax should be kept immobilized as much as possible to increase *abdominal breathing.*

During *expiration* the *abdominal* muscles should be pulled in. *No deep inspiration.*

II. Abdominal Breathing:

Lie on back, knees drawn up, body relaxed, one hand resting on upper portion of abdomen. *Exhale* slowly, gently *sinking* chest, and then the upper abdomen until well retracted at end of expiration. Then relax upper abdomen so it bulges forward while taking a brief inspiration through nose. Repeat 8-16 times. After a rest of a minute, a second series should be performed.

III. Side Expansion Breathing:

Sit relaxed in chair—place belt around lower portion of thorax. *Exhale* slowly, sinking first the upper part, then the lower part of the thorax, and finally compress the lower ribs slightly by tightening the belt. This is done in order to empty the base of the lungs. Now expand the lower ribs against belt while inhaling quietly. Relax arms and shoulders while exhaling until time to pull on belt again. Repeat as in exercise No. II.

The palms of the hands can be used instead of a belt for compressing the lower ribs.

IV. Elbow Circling:

This exercise is to be performed between breathing exercises. Sit leaning forward at the hips, spine straight, fingers on shoulders and elbows level with shoulders.

Carry the elbows in circles forward, upward, backward and downward. Repeat 4-8 times, rest, then repeat cycle several more times.

V. Forward Bending:

Sit relaxed with feet apart and arms at side. (a) exhale slowly while dropping head forward, sinking chest, and bend back forward until head is over or between the knees. The abdominal muscles should be retracted firmly during the latter part of the forward bend. (b) Raise trunk slowly while inhaling. Meanwhile, permit the upper part of the abdomen to expand. (c) Exhale quickly, sinking the chest and abdomen but remain erect. (d) Inhale slowly, expanding only the upper part of the abdomen. Repeat 4-6 times; rest for a minute and repeat.

ORTHOPEDIC SERVICE

Our Orthopedic Staff utilizes the Physical Medicine Rehabilitation Service to the fullest extent. The work load of this service has become so heavy as to require the full time services of one physical therapist and one corrective therapist working on the ward treating bed cases only. Treatments are prescribed on most cases immediately following hospitalization.

The Chief Surgeon states, "We have tried for years to avoid a forced stay in bed, by prescribing physical exercises; so, that when they again become ambulant, their unaffected limbs can support them with the aid of crutches or other prosthetic appliances. This has been especially true for amputees. We have learned that unless the remaining portion of a limb is kept active, it will be useless to fit it with an artificial leg."

Maintenance of range of motion and muscle function, muscle re-education when indicated, general conditioning of the unaffected parts, and crutch walking instructions, are a few of the many duties assigned to the Physical Medicine Rehabilitation Service personnel by the Orthopedic Staff. As soon as a patient is ambulatory, he is transferred to the clinics, and as a result of the ward exercise program, he is ready and able to proceed with more intensive therapy. The Physical Medicine Rehabilitation personnel on the ward work under the direct supervision of the Chief of the Orthopedic Service, and each therapeutic procedure is explained thoroughly to the therapist prior to the initial treatment. Ward rounds are made with the Staff, and any change in treatment is prescribed by the Orthopedic Staff at this time. Eighty-four percent of all orthopedic cases admitted are assigned to the Physical Medicine Rehabilitation Service, and according to statistics, a bed day saving of twenty percent is directly due to this treatment procedure.

Neuropsychiatric Service

The Physical Medicine Rehabilitation Service gets its most severe test from its neurological cases. These cases run the gamut of diseases, and the average age is well over fifty years. Treatment consists of everything from teaching a drooler to wipe his mouth to the ambulation of the seemingly impossible. The therapist must be everything from a gadgeteer to a psychotherapist. Each patient presents a different problem, and the phrase used by Dr. Herbert Scheffer in his recent article "Operation 'human salvage' is under way" most certainly is apropos.

We have a working agreement with the Social Service Section whereby we refer to them prospective cases for discharge, and they in turn attempt to educate and prepare the family to be in a receptive mood to accept the veteran when he is ready for discharge.

In most cases the referral should be as early as possible, giving them ample time to accomplish their

mission; as we have found, we are sorry to report, too many families unwilling to accept these veterans back in the home. We are not talking of the few helpless cases that would demand full time care at home, but of the patient who is self sufficient, able to care for his needs, but whose earning power has been reduced or ended. This program is making progress, and more and more of these unfortunate patients are being taken back into the home, or returned to industry where they rightfully belong.

Let us illustrate by presenting a few of these cases.

Number 1, a 61 year male, was admitted on March 16, 1950. His chief complaint was his inability to use the right arm and leg, and there was a moderate speech defect. On protrusion, the tongue deviated to the right. The right arm and leg showed a flaccid paralysis. Patient was obese, weighed 250 pounds, and the blood pressure was 180/104. The left patella was absent, and there was ankylosis of the left knee with a three and one-half inch shortening of the left leg. Diagnoses: (1) Cerebral infarction, left with right hemiparesis. (2) Arterial hypertension. (3) Ankylosis, left knee with three and one-half inches shortening of the left leg.

Patient was referred to the Physical Medicine Rehabilitation Service on March 20, 1950 for progressive hemiplegic routine and, at that time, required infant care. He was alert, well oriented, and cooperative. Treatment consisted of mild general conditioning exercises, joint range of motion exercises, walk retraining, and muscle re-education.

On March 27, 1950 a slight return of muscle function was noted, and patient could extend the leg from a flexed position. Sitting balance was started, and on April 21, 1950 patient was able to assume sitting position with the aid of a pull cord attached to the foot of the bed. Patient is now able to feed self, shave, and propel wheelchair around ward.

On May 18, 1950 a knee cage was applied, and with an extension block on the opposite foot, patient was able to maintain standing balance. By July 24, 1950 patient was able to get from bed to wheelchair, and with the aid of a knee cage and built up shoe, was able to walk 100 feet unassisted. On August 11, 1950 patient was able to care for all his ward and personal needs. Patient was discharged September 1, 1950, as Maximum Hospital Benefit, with slight return of function of the hip flexors of the right leg, and with no return in the upper extremity. He was able to ambulate with one crutch and knee cage, use wheelchair, and care for his daily and personal needs.

This was a routine hemiplegic case, and is presented only because of the disability to the uneffected side. The three and one-half inch shortening of the leg, plus the ankylosis of the knee, made this a much greater problem than an above knee amputee with a hemiplegia on the opposite side.

Patient Number 2, a fifty-four year old male, was admitted to this hospital October 17, 1947 with a diagnosis of cerebral vascular accident, right, with a resultant left hemiplegia. His history reveals that patient suffered a stroke eight months previous to admission, causing a total paralysis of the left extremities and a thickness of speech. At time of admission the patient was generally weak from eight months of bed confinement and inactivity. His left arm was spastic with a typical flexion contracture. There was no active motion present. The left leg showed the left hip to be externally rotated, a twenty degree flexion contracture of the left knee, and a left foot drop. Atrophy was present in both left and right extremities. Patient was unable to stand and required infant care. On October 21. 1947, patient was referred to Physical Medicine Rehabilitation Service. His prescription consisted of hydrotherapy with underwater exercises, general conditioning exercises, remedial exercises, walk retraining, and speech therapy. Physical Therapy, Corrective Therapy, Occupational Therapy, Manual Arts Therapy, and Educational Therapy all participated in the patient's treatment program.

In December of 1947, patient was issued a long leg brace, ambulation was started, and progressive resistive exercises were added to his prescription. By January 15, 1948 patient was ambulatory with brace and cane, the contracture in the left knee had been corrected, and quadriceps, hip flexion and extension showed good improvement. He was able to feed self, shave and care for all of his ward needs.

On re-evaluating the patient, it was decided to remove the long leg brace and replace it with a drop foot Klenzak brace. Buckles were put on both shoes and the brace cuff. The left arm showed no signs of improvement, but the patient's speech had returned to normal. After two trial visits home, patient was discharged as having received Maximum Hospital Benefit. He was ambulatory, able to negotiate stairs, ramps, and walk a distance of two miles without tiring, and was self sufficient. This patient was a recent visitor, and is working part time in a grocery store.

Patient Number 3, fifty-six year old male, was admitted to this hospital on November 7, 1949, with a diagnosis of cerebrovascular accident, right, with resultant left hemiplegia. He gave a history of experiencing weakness and inability to control his left leg while driving his car on November 3, 1949. Shortly after arriving home, he fell while trying to get to the bathroom, and was admitted to a hospital in his home

town. At this time, he demonstrated no weakness of any extremity, but did have some difficulty in controlling the movements of his left arm and leg. There was some deviation of the tongue to the left, and the speech was slightly slurred. On examination the next day, it was noted that the involvement of the left arm and leg had increased, and on re-examining the patient later the same day, it was found that the left arm and leg had become completely paralyzed. The patient was then transferred to this hospital.

Neurological examination revealed paralysis of the left upper and lower extremities with no facial weakness noted, and the sensation was intact. Following laboratory and EKG studies, the patient was assigned to the Physical Medicine Rehabilitation Service. Patient was assigned to Physical Therapy and Corrective Therapy for heat, exercises, maintenance of range of motion, muscle re-education, and general conditioning, twice daily. Within seventy-two hours some return of function was noted, but movements were incoordinated. Occupational Therapy was then added to the patient's treatment program. After three weeks of intensive treatment, patient had improved to the point that ambulation could be started. Muscle re-education and coordination exercises were increased, and in five weeks patient had made such a remarkable recovery that he was discharged Maximum Hospital Benefit. At time of discharge, patient was fully ambulatory and had near normal use of left aorm and hand. Patient returned to previous occupation, and on recent visit to this hospital stated he had worked an average of eight hours a day, and had lost no time due to his disability.

We have had a total of 156 hemiplegic cases assigned to the Physical Medicine Rehabilitation Service in the past three years, and of this total 116 have been discharged Maximum Hospital Benefit, 15 have died, and twenty-five are receiving treatment at the present time. The chart printed below is used to record the activities inherent to daily living. It has proved adequate for all purposes.

NOTE

Editor needs the following back issues to complete a report for publication in the next edition: July-Aug., 1947, Jan.-Feb. 1948; May-June 1948, Oct.-Nov. 1948.

PROGRESS REPORT FOR HEMIPLEGIC PROGRAM

Date of Cerebral Accident_____ Date of Admission_____ Date PMR Began_____

Diagnosis_____ Onset_____

Former Occupation _____ Age_____ Social Problems _____

Physical Condition_____

Mental Condition (Check) Normal_____ Fair _____ Poor _____

Aphasia (Check) None_____ Partial _____ Complete _____

Changing Position in Bed_____
Sitting Balance for 5 min._____
Maintain Sitting Position for 2 Hrs._____
Control Footrests of Wheel Chair_____
Propel Wheel Chair_____
Moving from Place to Place in Bed_____
Moving from Bed to Wheel Chair_____
Feeding Self _____
Moving from Wheel Chair to Toilet _____
Moving from Toilet to Wheel Chair_____
Moving from Wheel Chair to Bed_____
Dressing _____
Moving from Bed to Erect Position_____
Walking Thirty Feet_____

Moving from Erect Position to Bed_____
Undressing _____
Writing Name with Unaffected Hand _____
Writing Name with Affected Hand_____
Opening and Closing Door_____
Walking up Ramp_____
Walking Down Ramp_____
Walking Sideward _____
Walking Backward _____
Going Up Steps_____
Going Down Steps_____
Walking 300 feet in 5 min._____
Walking 42 feet in 20 sec._____
Taking Bath or Shower_____

Disposition:_____

Length of Hospitalization:_____

Remarks:_____

Technician_____ NAME _____

Chief, Physical Medicine Rehabilitation WARD ROOM REG. NO.

(Continued on Page 26)

THE PHYSICALLY AND PSYCHOLOGICALLY HANDICAPPED GET THEIR CHANCE

RICHARD T. MACKEY, Ed.D.
Department of Physical Education
University of Kentucky

If the interesting new physical education programs being developed by a few colleges are adopted by a sufficient number of other institutions in this country, it appears that the handicapped college students will get their chance to profit, both physically and psychologically, from physical education programs tailored to suit their needs and give them maximum opportunity for physical and attitudinal growth.

Following World War II there was a marked expansion in the number of college physical education programs for the handicapped. Coupled with this increase came an application of new concepts derived from war-time experiences in Armed Forces convalescent hospitals. It was logical for these new methods to be introduced first on the college level. Many of the men who had made noteworthy contributions to the rehabilitation of Armed Service personnel returned to civilian posts as college physical educators.

College physical education programs following the war thus constituted for some physically and psychologically handicapped veterans a continuation of service rendered them previous to their discharge. Unfortunately, only a handful of individuals at a few widely scattered institutions recognized the opportunity to provide these much needed services. Veterans on the G. I. Bill were excused from all physical education, some administrators offering the reason that this was the kindly thing to do for those who had come to the aid of their country in war-time. However, in a small group of institutions in which the therapeutic values of physical education were recognized, a truly worthwhile service was rendered to veterans. The acquisition of skill at golf, tennis or bait-and-fly-casting by an arm or leg amputee and the resulting surge of personal satisfaction and increased self-confidence; the disappearance of an embarrassing limp through the restoration of muscular function as the result of prescribed therapeutic exercises; the new feeling of adequacy brought about by the learning or relearning of a recreational skill; or the change in attitude which enabled a veteran to adapt himself to new way of life made necessary by a permanent severe physical disability are only a few examples of the many highly beneficial outcomes of such programs of physical education.

A major portion of the success which these programs realized was the result of the exceptional degree of cooperation which was developed between the departments of physical education and the college or university health services. Any sound program of physical education for the physically and psychologically handicapped must have the close and careful supervision of medical personnel and this relationship was at its best where physical education made its greatest contribution in assisting the disabled veteran in his struggle to regain normalcy. Schools which developed outstanding programs of physical education for the handicapped include: Ohio State University, Michigan State College, Washington University at St. Louis, and others.

Five years have passed since the first veterans began enrolling in the country's many colleges and universities. At the present time the vast majority of the veterans who took advantage of Public Laws 16 and 346 have reached upperclass status and thus are no longer required to participate in physical education. It would appear that the area in which physical education has provided noteworthy services has been virtually eliminated. However, this is not the case. On the contrary, perhaps twenty per cent of lower division non-veterans students in most colleges and universities have physical or psychological handicaps of a nature which makes it inadvisable, if not impossible, for them to participate in the general program of physical education. Of this twenty per cent, perhaps one-fourth will have disabilities so severe as to make it necessary to excuse them permanently from all physical education activity. The remaining fifteen per cent of the students would benefit from a program of individual physical education, which may be defined as a diversified program of physical education suited to the student's interests, capactities and limitations.[1]

Thus it is that while perhaps the numbers involved have been reduced, although that is open to question, there is still the need for programs of individual physical education in which possible objectives would include the following:

1. Protection; prevention of further aggravation of injuries through the selection of an activity well within the limitations of the student's disability.

[1]Daniels, Arthur S. "Nature and Scope of Individualized Physical Education in Our Schools," (Unpublished paper, The Ohio State University, 1949), p. 9.

2. Improvement; amelioration of function or elimination of the disability wherever possible.
3. Attitudes; development of a philosophy of living which will enable the student with a permanent disability to govern his daily activities and plan his future within the framework of his limitations.
4. Socialization; provide opportunities for normal social development through the acquisition of recreational sports skills.
5. Appreciations; development of attitudes toward athletics and recreational sports which will result in an enthusiastic participant and an telligent spectator.
6. Strength; development of organic vigor to enable the student to become more efficient in performing the tasks inherent in daily living.

With these objectives as a basis for planning, a program of individual physical education was recently organized at a large eastern college. The steps in the establishment of this particular program are as follows:

1) *Establishing a relationship with college health service personnel.* The cooperation and confidence of medical personnel must be secured. Equally important, because of the possibility of infringing upon medical practice, is the establishment of a clearly defined area within which physical education may operate.
2) *Health examination conducted by the college health service.* Herein is provided the means of meeting the first basic need of all physically handicapped persons; to be discovered. It is also the point at which the physical educator makes his first friendly contact with the student.
3) *Individual conference with student and scheduling of classes.* Through this conference information regarding the student's needs, interests, limitations and capacities is utilized in the selection of an appropriate activity for him. The primary basis for this selection is, of course, the medical findings.
4 *Organization of the program areas.*
   a. Special conditioning includes the use of specific therapeutic exercises to bring about improvement or elimination of disabilities, usually of an orthopedic nature, and the development of general strength and endurance through the use of general developmental exercises.
   b. Recreational sports—consists of the teaching of skills which will provide opportunities for the student to develop social competencies and leisure-time interests through the medium of activities such as golf, tennis and badminton.
   c. Aquatics—(to be added in the near future) will consist of standard aquatic activities plus the use of swimming as a therapeutic agent in the improvement of muscular function.

While the results achieved in this recently established program have not been as spectacular as those operating in the immediate post-war era, they are, indeed, worthy of mention. Perhaps the most effective manner of presenting evidence of these results is through the medium of case histories. The following are case histories of students enrolled in individual physical education in the large eastern college previously mentioned.

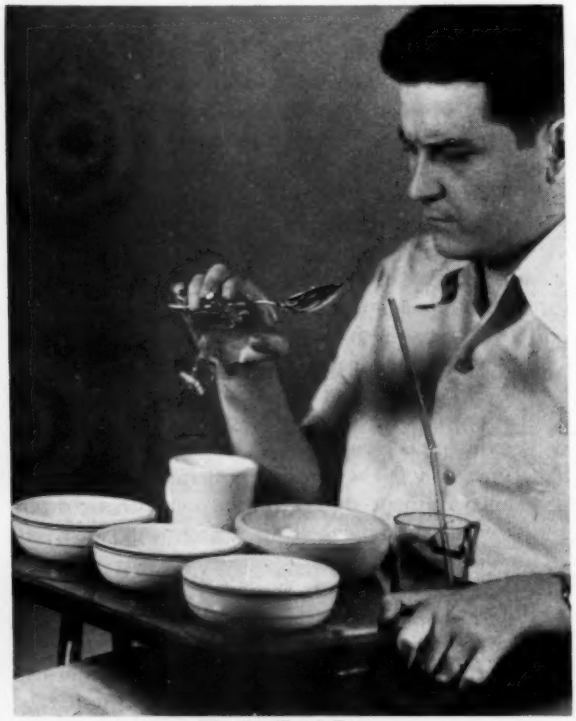
1. R. S. (Sophomore). Disability: Feelings of rejection and inferiority, fear of competitive sports participation. R. S's history indicates the influence of an over-protective mother. Her attitudes toward rough play, fighting and mock warfare were eventually transmitted to him. The direct result was that he never learned to play with other children. Physical education classes became for him something to be avoided at all costs. Upon entering college he was assigned to the individual physical education program by the college health service physicians. In his term paper for this course in physical education R. S. wrote, "For the first time I am enjoying a gym course. Yes, the past years of hurt and fright are finally being worked out. I am confident that with the sympathetic attention I am now getting, things will work out well."
2. R. V. (Sophomore). Disability: right leg, partial paralysis, and surgical ankylosis of right hip and ankle joints, the result of a birth injury. Atrophy of the muscles of both legs. Physicians informed R. V.'s parents shortly after his birth that he would probably not live more than few days. After spending many months in a wheel chair and many more with iron braces on his legs R. V. proved they had underestimated his tremendous determination. He now walks without assistance except for a cane which is used for balance only. While R. V. has been, to some extent, active in sports, through the individual physical education program new opportunities are being made available to him. During the past year he has acquired skill in shuffleboard, archery, bowling and golf. While his disability is a permanent one requiring him to make certain adjustments, these new skills will greatly increase his opportunity for normal social development.

(Continued on Page 15)

DEVELOPMENT OF DEVICES FOR SELF-FEEDING OF THE QUADRIPLEGIA PATIENT

CHARLES W. McHUGH
Corrective Therapist, VAMTG, Kennedy Hospital
Memphis, Tennessee

Physical independence for the quadriplegia patient has presented a challenge to rehabilitation wrokers for several years. One time-consuming detail causing one of the greatest problems has been self-feeding. The first obstacle was the placement of the spoon or fork in the patient's hand securely enough for feeding.



Plastic Hand Brace

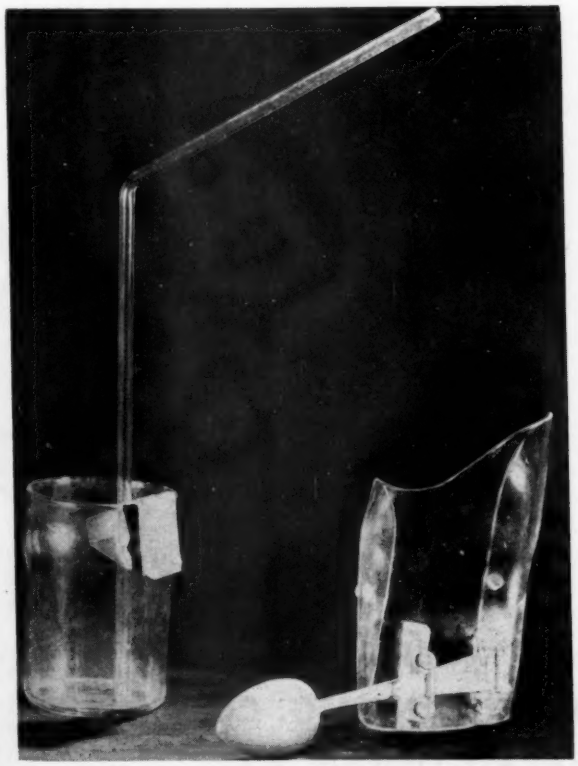
A plastic hand brace which was molded to fit the contours of the hand was designed and constructed in the Orthopedic Brace Shop*. Each patient was individually fitted with a brace suited to his needs. A plaster model of the hand in the proper position was made from which the brace was fashioned. A piece of plexiglass was used for the brace. To condition it for shaping it was suspended in an oven in order to obtain uniform heat and pliability. The plexiglass was cut and shaped around the plaster model of the hand. A plastic bar 2¾" x ½" x ¼" was cemented to the palmar surface of the appliance directly under the index finger in vertical position. Another small bar of the same dimensions was used to clamp the handle of the spoon or fork securely between the bars by tightening two knurled screws. Another small piece of plastic was cemented approximately one inch from the clamp with a sufficient opening to admit the handle end of the spoon or fork. This piece of plastic is sufficiently wider than the end of the spoon or fork to permit adjustment at various angles and helps to hold the spoon or fork in the fixed position. In spinal cord injury with quadriplegia, many patients have flexion deformity of the elbow and a partial supination of the hand. With only partial supination, it was necessary to bend the spoon before it reached the mouth. Plexiglass was used because it is easily shaped, the pressure points can be seen and it is easily cleaned. The cost of material was approximately $0.70 and the labor cost approximately $5.16.

Plastic Tray

*Permission for use granted by Orthopedic Brace Shop. Several members of their staff aided in perfecting the brace and no one person was responsible for its development.

Sponsored by the VA and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are a result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

It was difficult to prevent the patient from pushing the food off the plate before he could get it onto his spoon. The first idea presented to overcome this difficulty was a plastic ring one inch wide and one-quarter inch thick which would fit around the edge of the plate. The plastic ring was grooved so that it would remain fixed on the plate. This device did not prove satisfactory because in most cases the hand moved through a wide arc that caused difficulty in preventing the food from falling off the spoon before it reached the mouth. Further development of this idea was needed. A new tray now in use was originated and perfected by the writer with the aid of Mr. Quinton W. Goode of the Manual Arts Therapy Staff. It is made of half-inch hand-tempered masonite and consists of four wells that hold soup bowls and two smaller wells that hold a coffee mug and a glass. A new stainless steel clip that fits over the lip of either the glass or coffee mug was also made and perfected. A 17" glass tube was made which is bent to an angle of approximately 110 degrees seven inches from one end of the tube. The tube is inserted through two holes in the clip which holds the tube in place. This new device enables the patient to drink fluids by simply bending his head slightly forward. These articles are all made in the Manual Arts Therapy Shop.



Stainless Steel Clip

The cost of each tray is approximately $1.90, the material costing $0.40 and the labor $1.50. The cost of the clip is approximately $0.05 and the labor cost is nil. The tubing costs approximately $0.03.

The restoration of patient morale which has been made evident through the use of the tray has rewarded us for the time spent in development, construction and operational techniques. Before this tray was developed it took one ward attendant approximately one half hour to feed each patient who needed this special equipment. Now all patients can be served trays in the time formerly required to feed one patient. One ward attendant can give necessary help to several patients under the present system. These patients must be in the sitting position due to limited muscle function and they can eat in groups. Meal time is a much happier situation, food is enjoyed more and much valuable time is saved. This saving of time gives the busy attendant much additional time needed for his other important duties.

HANDICAPPED GET THEIR CHANCE—(Con't.)

The task of meeting the needs of the physically and psychologically handicapped students is one which should be of vital concern to administrators of every institution of higher education in the country. Indications are that this problem will attain increased proportions in the next ten years. According to the President's Report on Higher Education the college and university enrollments will increase tremendously by 1960 and thus increase correspondingly the number of handicapped students.[1] The application of scientific research to the development of artificial appliances will enable more and more disabled persons to take advantage of additional training in schools of their choosing. With this general increase in the number of handicapped students will come the need for additional professionally-trained physical education personnel. Very few institutions offer such training at the present time. Hand in hand with the need for new personnel is the need for adequate physical education facilities, some of which must be specially designed if they are best to serve their purpose. It would appear, therefore, there is an urgent need for much critical thinking with respect to this whole general area. College administrators, health service personnel, and physical education personnel must bring together all resources at their command if higher institutions are to discharge the great responsibility they have to every physically and psychologically handicapped student who comes under their charge.

[1]"Higher Education for American Democracy," U. S. President's Commission on Higher Education, New York: Harper & Bros. 1948, p. 43.

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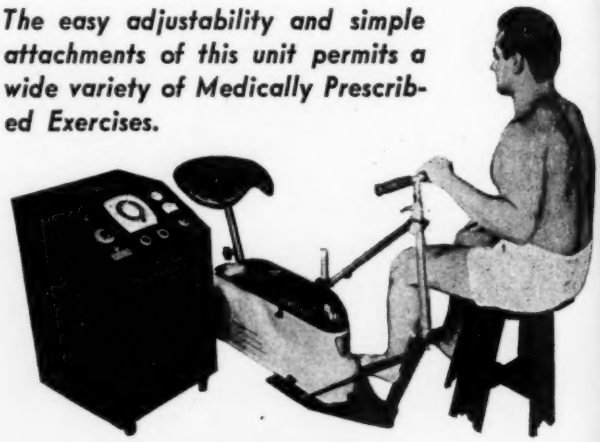

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REMEDIAL EXERCISES AND REHABILITATION IN BACK INJURIES

MARCUS STEWART, M.D.
Campbell Clinic
Memphis, Tenn.

When in man's ascent erect posture evolved he added many encumbrances to posterity, but none which would present more physical disability or handicaps than those of the spine in general or the lumbosacral joint in particular. There is no joint of the body or in any comparative animal which must withstand so much stress and strain at so great a mechanical disadvantage. However, if the complex group of muscles of the spine are alert and strong, force will be transmitted along the vertebral column in a cog wheel or split-second timing manner so that the maximum load will never arrive at any fixed point at any given moment. On the contrary, if there is alienation and poor development of the trunk muscles, then we can expect a maximum load to arrive at a given or fixed point in the back at a given time. The mechanics of levers, pulleys and fulcrums as applied to the bones, joints and muscles of the body are common knowledge.

RECONDITIONING BEGINS

The greatest therapeutic value is restoration of the physical and mental residual to maximum efficiency in the shortest possible time. One must never lose sight of the basic principle that therapeutic exercise is the foundation of rehabilitation. Also, that each patient is an individual problem and treatment and exercise must be fitted to the patient and not vice versa.

It has often been stated that reconditioning begins as soon as the patient is ambulatory or the immobilization can be discontinued. Nothing is further from the truth, reconditioning should begin as soon as the injury or insult occurs, for it is far better to preserve than to restore function. The two most essential steps in rehabilitation are, *first,* the proper instituting of early active exercises, and, *second,* a conscious and enthusiastic effort on the part of the doctor or therapist to impress the patient with the attitude and desire for recovery, for unless these are well established, reconditioning plans and effort will be for naught.

In injuries of the back, after a diagnosis has been established, the next consideration is the selection of a method of treatment. Choose the plan which will most adequately serve the disability but at the same time restore the function of the individual as a whole to an economically solvent capacity.

AIMS AND METHODS

Relieve Pain
Allay Muscle Spasm
Maintain Mobility
Restore Function and Muscle Power
Sedation
Immobilization
Hospitalization
Surgery
Braces & Splints
Physical Therapy
(a) Heat
(b) Massage
(c) Exercise-active
-passive

First and foremost with the patient is relief of his pain. This may require sedation, immobilization, hospitalization, surgery or other forms of definitive therapy. As in acute back injuries relief may be obtained by immobilizing the spine, infiltration with novocaine, ethyl chloride spray, curare, tolserol and other drugs.

Here we are primarily concerned with the physical modalities of rehabilitation which are various forms of active therapy; the chief purpose of each being to increase the local blood supply. The Romans advanced and popularized heat, especially *hot baths.* The Scandinavians have more than any other people perfected the art of *massage.* The British and Americans, during World War II, demonstrated and popularized the virtues of *active exercise.*

Let us review briefly the indications and contra-indications for local *heat.*

HEAT

It should be used when hyperemia is desired. As in:
(1) Spasm of striate muscle
(2) Acute traumatic injuries after 48 hours.
(3) Arthritis of all types
(4) Cellulitis and infected wounds
(5) Painful pleurisy or inflammation of any serous cavity
(6) Anterior Poliomyelitis

Contra indications:
(1) Where there is danger of hemorrhage
(2) In the first 24 to 48 hours after acute trauma
(3) Eczema, and other skin diseases
(4) Cardiac decompensation

(5) High blood pressure and general systemic debility
(6) In neoplastic growth (As Cancer and Sarcoma)

MASSAGE

Massage should be gentle and given with firm strong hands in a room with temperature about 70 degrees. Pain should be relieved, never aggravated.

Indications:

(1) To improve local vascular function
(2) Assist in the freeing of adhesions of the skin, subcutaneous tissue and muscle.
(3) To assist in the absorption of edema or hemorrhage
(4) Psychic and soothing effect.

Contra-indications:

(1) Presence of Neoplastic growth
(2) Acute infection and suppuration
(3) Skin disease or hyperesthesia
(4) Paranoids, homosexuality, etc.

ELECTRICAL STIMULATION

Galvanic, faradic and sinusoidal currents are now used more as diagnosis than as therapeutic measures.

EXERCISE

Passive exercise helps to prevent adhesions in muscles, tendons and joints, also prevents contracture and preserves motion, but it is of no positive value in muscle development.

Active exercise: Active therapeutic exercises are of more definite and practical value in rehabilitation of the back than all the other forms of physical therapy combined. Their benefits are three fold.

I. First in importance is the local affect;—
   A. Local acceleration of the blood flow (6 to 9 times)
   B. The development of joint motion and strengthening of the musculature
   C. Release of swelling, edema and adhesions
II. The general or systemic affect;—
   A. Improvement in general circulation and metabolism
   B. Improvement in general muscular tone and relaxation
III. The mental or psychic affect;—
   A. Increase in self respect and self satisfaction by tangible physical progress
   B. Benefits of an occupied mind, for an idle mind is the Devil's work shop.

MUSCLE FUNCTION

(1) *Power*—the ability to and extent of contraction
(2) *Elasticity*—ability to yield to passive stretch or give up contraction.
(3) *Coordination*—or cooperation of muscle power in timing for power and elasticity.

Assuming that active exercise is the most important factor in rehabilitation, let us consider its primary mode of function. The basic qualities of muscle function are, according to Kraus,*Firsts Power,* that is, the "ability to, and extent of contraction," and*Seconds elasticity,* the ability to yield to passive stretch and give up contraction thus assuming a maximum length. *Thirds coordination* or the cooperation of muscle groups in timing for the maximum utilization of power and elasticity.

A sedulous and continual demand on an increased scale for each component must be practiced if improvement in quality and quantity of function is to be expected. Then, our *goal* is the performance of therapeutic function in a prescribed manner so that: (1) in weak muscles we develop power, (2) in adhesions or inelastic muscles, we increase the stretch or elasticity and (3) in alienated groups we correct the timing and coordination.

MUSCLE POWER

As a rule of thumb, we agree that the resistance or weight given for power building purposes must be large enough to demand more than the normal effort of the involved muscle but less than the maximum effort. However, the quality of resistance or strength is dependent on the amount of weight as well as the number of repetitions. Therefore, it must be borne in mind that muscle power is measured in the muscles' ability to produce work or overcome resistance.

Power building exercises given on a daily routine produce a decrease in capacity after the first day which may continue for as long as a week, but then there will be a gradual increase or gain in capacity. If pushed beyond the point of fatigue, a muscle may lose its ability to perform at all, and result in spasm and pain; then complete rest becomes necessary. The nearer the muscle approaches normal, the closer will power building or resistance exercise approach fatigue limits. However, after maximum efficiency has been obtained it requires only two or three exercise periods a week to maintain this level.

Weight resistant or power building exercises repeated in a sedulous manner for long periods will develop *endurance.* Endurance developed by repetition instead of heavy resistance will, as a rule, produce good coordination. For example, the strength and endurance of a tennis player compared with that of a weight lifter. It must be remembered that endurance is a function of *power* and *repetition.* Therefore, endurance for high-power performance must be produced by increasing resistance and frequent performance.

ELASTICITY

Physiologically, elasticity is the ability of the mus-

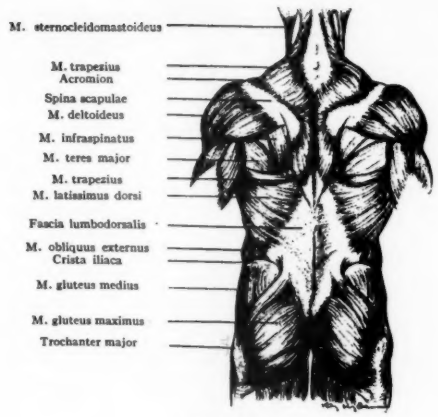

Fig. 1

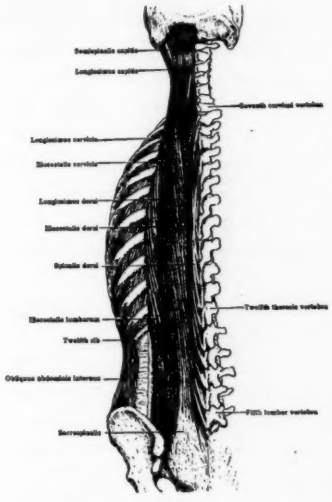

Fig. 2

cle to decontract or mechanically, the ability to yield to passive stretching. For proper function the speed of relaxation of a muscle must exceed the speed with which the length of its antagonists decrease, (or contracts) When this criteria is not fulfilled due to atrophy, over exertion, or weakness, then spasm develops causing sustained contraction resulting in fatigue and pain. A tired muscle loses its ability to relax to its maximum length, but can remain in a state of partial contraction producing the vicious cycle of pain and spasm. For relief, this cycle must be blocked by complete rest, heat and massage or by such drugs as novocaine, curare or myonecine.

If the mechanical elasticity is permanently impaired the result will be fibrosis and contracture. If the reverse of this is true and the normal length is exaggerated there is "over-stretch." The state of spasm or lack of physiological elasticity can be overcome by stretching, but this must be passive and not resistant. Thus, the benefit of leg traction for back pain and muscle spasm.

COORDINATION

What does it profit a man to have the muscles of Atlas and the elasticity of a child and have no coordination. He is like the proverbial bull in the china shop. Coordination is like a condition reflex, it must be spontaneous. It may be summed up, to be well-timed and well-balanced function of several muscles acting together to effect proper relation of the various parts of the body.

To effect coordination you must first develop elasticity and power, then a simple pattern of balance and balance performance; next the ability to relax or suppress the impulses to contract the wrong muscle. Attempting skills too far beyond capacity or over-development of power or elasticity may result in poor coordination and delay in recovery.

MEASUREMENTS

Power, elasticity and coordination measurements of each patient should be recorded on special charts and repeated findings computed on a graft. This chart or graft will be of great value in following the progress and in obtaining the patient's intelligent cooperation.

ANATOMY OF THE BACK MUSCLES

To better explain our plan and technique of rehabilitation of the back let us review for a moment the anatomy of the muscles of the trunk. They are arranged in six anatomic groups.

I. Deep Muscles of the Back
II. Suboccipital Muscles
III. Muscles of the Thorax
IV. Muscles of the Abdomen
V. Muscles of the Pelvis
VI. Muscles of the Perineum

We are most concerned here with Group I but Group III, IV, and V are also of prime importance. The superficial muscles of the back and trunk are large powerful muscles. (Fig. I). You are all familiar with these and refer to them continually. But, consider for a moment the deep or intrinsic group which are divided into the long splenius (or bandage shaped) and spinalis muscles which with many interdigitations extend from the occiput to the sacrum. (Fig. 2). While the smaller and shorter muscles as the multifidus, interspinales, iliocostalis and longissimus connect all bony prominences from occiput

Fig. 3

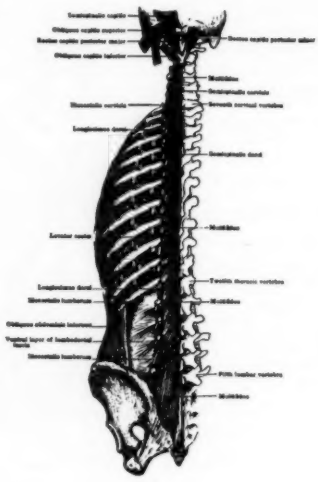

Fig. 4

to sacrum. (Fig. 3). The multifidus, for example, consist of a number of fleshy and tendinous fasciculi which fill up the groove on either side of the spinous processes of the vertebrae from the sacrum to the axis. (Fig. 4). The fasciculi of these vary in length. The longest, superficial fibers pass from one vertebra to the third above, while the deepest connect two contiguous vertebrae.

The multifidus act successively upon the different parts of the column, the sacrum furnishes a fixed point from which the fasciculi of these muscles act up on the lumbar region; which in turn becomes the fixed point from which they act upon the lower thoracic region; and so on throughout the length of the column.

Nature has provided us with multiple check reins for the back. Thus it behooves us to maintain or rebuild and maintain an alert, responsive, strong musculature of the back if we hope to return our patients to competitive daily activity.

THE PLAN

I. The primary consideration in treatment of the painful back is the relief of pain. Supportive treatment must be instituted as is necessary and active treatment or exercise must not aggravate the symptoms.

II. Heat, massage and exercise to be effective must (1) Relieve pain (2) Relax spastic muscles (3) Improve circulation and metabolism. (4) Prevent the development of contractures and adhesions (5) Maintain or restore motion (6) Development muscle power, elasticity and coordination.

III. Therefore the method of treatment must be:

(1) Activities, simple and limited in number
(2) Standardized but flexible
(3) Instructions and explanation should be written
(4) Teaching should be by demonstration
(5) The patient must be impressed with the importance and necessity of executing the program

In considering rehabilitation of the back we are first confronted with the questions of cause and type; are we dealing with an acute injury, a chronic, or an acute exacerbation of a chronic back disability. Next, is the pathology primarily in the bones and joints, musculature or is it of neurogenic origin.

Having answered the above questions to the best of our ability, we will find that some 70% of our patients will respond to a regime of conservative treatment. Those who require surgery or manipulation, as in fractures, certain cases of ruptured disc, etc., will in a very short time be candidates for rehabilitation. It has been our experience that in cases with ruptured intervertebral discs that 10% will require immediate surgical exploration, 20% will require surgery after varying periods of conservative treatment, while at least 70% will respond to conservative therapy.

In World War II, while serving in the A. U. S. in Europe, we had the opportunity of observing a large number of back injuries. Our first series of 415 patients with back disability studied at a rehabilitation center included a wide variety of injuries. There were 121 patients with fractures of the spine; they ranged

in severity from 41 with fractures of the transverse processes to 27 with compression fractures of one or more lumbar vertebral bodies. This group of fracture cases spent an average of 117.3 days total hospitalization. In the total series of back disability are included such cases as arthritis of the sacro-iliac joints, spondylolisthesis, congenital anomalies of the 5th lumbar segment, myofascitis and others.

All of these patients were placed on a program of specific remedial back exercises, carried out under the direction of physical training instructors. The 415 patients spent an average of 101 days in hospitalization and rehabilitation. Of the total group, 92.3 per cent returned to duty in the European Theater of Operations; of those, 57.8 per cent returned to full military duty, 34.5% to limited duty and only 7.7 per cent were transferred to other hospitals or returned to the Zone of the Interior.

These results were not obtained because of the virtue of any given series or specific type of exercises, but because exercises were enthusiastically taught and religiously executed in a sedulous and progressive manner.

Similar results are being obtained today in the V. A., in industrial and private practice. I would like to cite two cases for illustrations:

CASE REPORTS:

CASE I. Mrs. E. G., fifty-three year old lady fell fifteen feet when a stairway banister gave way and she plunged to the floor. She sustained a compression fracture of the ninth thoracic and second lumbar vertebrae; there were no neurologic changes. Under general anesthesia, the spine was hyperextended, the fractures reduced and maintained by a plaster body jacket. After three days, she was placed on a program of exercises for the lower extremities and arms. On the tenth day, she began back exercises in the plaster jacket. At the end of the three weeks, she could, by hyperextension, lift her head, shoulders, and the upper part of the body cast off the bed forty-five times at one exercise period. At the end of the two and one half months, the plaster was removed and the musculature of the back was found to be in excellent condition. With the temporary aid of a brace, she returned to her job and has worked as a Stenographer without interruption or complaint.

CASE II. Mrs. E. R., thirty-eight years old, related a history of pain in her back for ten years Since onset, there had been periods of remission and exacerbation, but she had never been entirely free from pain. Symptoms were located in the lumbar region, but there was no sciatic radiation. Examination revealed an increased prominence of the spinous processes of the lower thoracic and upper lumbar vertebrae, with accentuation of the lumbar curve and a general increase in the thoracic kyphosis. There was very little muscle spasm until motion was attempted; movement produced immediate fixation in flexion or extension, but lateral bending was possible to 50% of normal. Pressure on the lumbosacral joint caused pain. All leg signs were essentially normal; patellar and achilles reflexes were normal. Roentgenograms revealed an increase in the lumbar and thoracic curves, with osteo-arthritic changes, Schmorl's nodules, and evidence of old juvenile osteochondritis.

The patient was given instructions in conservative care of her back, and was fitted with a low back steel brace. She did not wear her brace or follow instructions, but returned in one month with symptoms more severe than before. She was admitted to the hospital and was placed on a firm bed; adhesive traction was applied to both lower extremities, and local heat with gentle relaxing massage was given to the lower back. After four days, back exercises were started. She was discharged nine days later with explicit instructions concerning her exercise program. After six months, she was free from pain and resumed normal activity.

The patient was last seen ten months later and the following note was recorded: "Patient states that she is remarkably improved and has had no pain in her back since beginning the series of exercises. There is no muscle spasm, pain, or tenderness at this time. The range of motion is essentially normal in all directions. All specific leg signs and special tests are normal. She was instructed at this time in more vigorous exercises and advised to continue with the entire series."

Early ambulation, per se, is not necessary and seldom desirable, but early active exercise is essential. Recumbency and lack of active exercise are conducive to a multitude of ills; poor circulation embolism, pulmonary and cardiac congestion, osteoporosis, and in fractures, poor callus. Josetes has pointed out the importance of establishing and maintaining good body mechanics with correct posture, not for a given exercise period, but for twenty-four hours a day. He stated that good posture is found in "those emanating good health, confidence, courage, and personal cleanliness. Good posture is rarely associated with cringing, withdrawn characters with slow-moving, weak, timid and dull individuals." He also stated: "Correct posture is, therefore, a dynamic concept involving proper use of all muscles and indirectly proper position of internal viscerae."

After establishing a diagnosis in back injury, the first consideration is elimination of the cause, if possible. Next, institute the necessary specific treatment which includes a definite plan of rehabilitation. Our

program for rehabilitation of the back is based on a plan for the relief of pain and muscle spasm, followed by active remedial exercises, first static or isometric contractions, then active motion. For example, in acute low back pain requiring conservative treatment:

OUTLINE OF TREATMENT

(1) Complete bed rest on a firm surface; Buck's traction and/or Fowler's position.
(2) Sedation as necessary
(3) Local heat to the back—with or without massage
(4) Specific therapy as Novacaine injection, Myonecine, Curare, etc. in selected cases
(5) When acute pain is relieved, we begin specific remedial exercises.
(6) A sedulous progression to more advanced exercises.
(7) Low back brace in special cases.

We furnish each patient a mimeographed copy of exercises, but always explain and demonstrate just how each is to be executed. After Series I, the isometric exercises, has been accomplished, the patient is allowed ambulation, then the next series is begun. The exceptional patients as athletes, soldiers or laborers are required to complete series III.*

The patient should be taught three important phases of muscle rehabilitation: (1) Contracting (2) Sustained contraction (3) Complete relaxation. For the program to be efficient, the doctor and the physical instructor must gain the patient's complete confidence and cooperation; the keynotes should be *patience, sincerity, enthusiasm,* and *optimism.*

SUMMARY

The primary considerations in rehabilitation are relief of pain, and a plan of specific therapy for the individual problem which embodies an intelligent program of progressive remedial exercises.

Active therapeutic exercises are of more definite value in rehabilitation than all other forms of physical therapy.

The technique of rehabilitation should be a simple program, short, standardized with written explanation and taught by demonstration. The patient must be impressed with the importance and necessity of executing the plan.

Early ambulation, per se, is not necessary and seldom desirable but early active exercise is essential. Reconditioning should begin as early as physically possible and include not only the part involved but the body as a whole.

In the E. T. O. a review of a series of 415 patients with back injuries who were on a special program of rehabilitation reveal that 92.3% returned to duty in the E. T. O. Case reports from Civilian practice bear out similar findings.

A plan of rehabilitation following injury of the back has been outlined. It is essential that the muscles of the trunk be strong, elastic and that coordination be excellent if function and mobility of the spine are to remain adequate.

*Copies of exercises available upon request.

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FIGURES

Fig. I—From "Surgical Anatomy" by Callander After Richer, 1937, published by W. B. Saunders Co.

Fig. II, III, IV—From "Morris Human Anatomy" by Schaeffer, 10th Edition, published by The Blakiston Co.

CORRECTIVE THERAPY—(Con't.)

sideration of the need for the therapist to be constantly on the alert for his own reactions to the patient which may interfere in his work. It seems to be human nature to like some people better than others and to do more for those we like. Unfortunately, the patients to whom we have a negative reaction are often the problem cases. Perhaps they are problems for this reason. When a therapist becomes aware he has an untoward or exaggerated emotional feeling toward a patient, it is usually due to the therapist's own anxiety. It may be the therapist feels he cannot carry out the treatment or is physically afraid of the patient, or feels he cannot control the situation. Or many other factors may be involved which tend to make the therapist feel inadequate and in turn become anxious. The blind spots of the therapist in regard to his own anxieties are often the chief cause of failure in therapy of the patient.

The aggressive patient presents a quite different picture from the patient who is withdrawing. While the intent of the aggressive patient is more obvious,

his behavior may not necessarily be prompted by hostility. Recently, on a visit to a hospital, I stood in a recreation room where there were a group of patients. A young male patient who had been sitting quietly walked toward me and, as he went by, struck me with his elbow. Overtly it was a hostile act, but I am not sure what he was saying by that gesture, whether it was "What right have you here?" or "Will you please take notice of me?" or some other explanation. Were I to work with that patient in a therapeutic relationship, it would be necessary to learn what he was trying to convey.

The corrective therapist working with disturbed patients has a delicate and difficult undertaking, since his major task is basically the understanding of the communications of the patients. The techniques of corrective therapy can then be properly and meaningfully applied.

Therapy of infirm patients, and more especially old people, it quite different from treatment of disturbed patients. While with the latter, one is dealing with pathological mental processes, with infirm patients the primary considerations concern pathologic and physiologic functioning of the body. The care of the infirm is a pressing problem. State hospitals report that one-third of their admissions are due to psychoses of senility and arteriosclerosis. Many of the elderly patients who arrive at the hospital are ambulatory, but they rapidly become bedridden. It has been reported that such patients have a decreased life expectancy after admission to a mental hospital. In addition, these old people are forced into a changed environment and must follow routines different from the ones they may have known for many years. Because of their physical limitations and because of administrative limitations in the hospital, long periods of inactivity are frequent.

What can corrective therapy do for these old people with their limited physical and mental resources? Are there activity techniques suitable for old and infirm people that can help maintain physical function at an optimum level? I have often wondered what might be done if a corrective therapist was assigned full time to a building of old patients. Perhaps one unit of the building could be used as a control unit and, after six months or a year, the results evaluated.

The field for corrective therapy in a psychiatric hospital is wide. The most useful area for this work is, in my opinion, with disturbed patients and with geriatric patients. The nature of treatment is quite individual in each of these areas. It is the job of the corrective therapist to try to understand the purpose of his undertaking and then to fit the techniques of his profession to his task.

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Transfer of Exercise as a Therapeutic Tool

ARTHUR T. SLATER-HAMMEL
Associate Professor of Physical Education
Indiana University
Bloomington, Indiana

The fact that systematic exercise of muscles in one part of the body produces a definite increment of muscular force in other parts of the body has been common knowledge among psychologists for over half a century. It would appear, however, that this phenomenon of transfer has not been seized upon, developed, and utilized by corrective therapists. To substantiate this conclusion, one can cite the findings of Hillebrandt, Parrish, and Houtz (5) to the effect that a review of the literature indicates that the phenomenon of transfer has not been used therapeutically. In view of the fact that the corrective therapy program is often concerned with the improvement of muscular performance and that the phenomenon of transfer offers a technique for increasing muscular performance, it would seem worthwhile to review the experimental evidence of the transfer effects of systematic exercise.

Two of what appear to be the earliest studies on the transfer effects of systematic exercise were conducted in the Yale Psychological Laboratory. In one study of Scripture (6), it was found that exercise of one hand with a dynamometer produced a definite increment of muscular strength in the other hand. In a second study by Davis (4), it was reported that systematic exercise of one limb with a dumbbell, dynamometer, and ergograph produced marked changes in the muscular performance of other parts of the body. He also concluded that resistance to fatigue and the size of the muscle increased in the unexercised parts. These transfer effects were found to be greatest in symmetrical and closely related parts of the body.

Utilizing an exercise program consisting of daily pulling on a dynamometer, Wessler and Richardson (8) found that systematic training of muscles in one arm resulted in an increased muscular performance in the accessory muscles of the exercised arm and in the muscles of the unexercised arm. In an attempt to study the mechanism of these exercise effects, a tambour system was used to record the presence of muscular contractions. From the records obtained, it was concluded that the exercise of particular muscles in an arm resulted in a diffusion of motor impulses which produced contractions in related muscles of the same arm. This, presumably, accounted for the improvement of muscular performance in the accessory muscles of the exercised arm. Since transfer effects also appeared in the musculatures of the unexercised arm, the experimenters inferred that during exercise of one arm concurrent contractions occurred in the muscles of the other arm. These latter contractions, of course, were not great enough to produce a movement in the unexercised arm, but they were apparently great enough to constitute a form of muscular exercise with resultant improvement of muscular performance.

Hillebrandt, Parrish, and Houtz (5) have reported on a series of studies involving the training of adult women with weights, a simplified Mosso finger ergograph, and a grip dynamometer. From the data obtained ,the authors conclude that systematic training of muscles in one limb augmented the strength and staying power of the same muscles in the unexercised limb. In their discussion of the mechanism by which muscular performance is enhanced, it is suggested that the transfer or "cross education" effects of exercise were due to the diffusion of motor impulses and to tonic postural reflexes.

Perhaps the most recent study on the transfer effects of exercise is that of Slater-Hammel (7). In this study twenty male university students were employed to test the bilateral effects of systematic exercise. Ten subjects were given 15 days of systematic exercise in flexion and extension of the right arm. Ten control subjects received no special exercise during this period. At the end of the training period, it was found that the experimental group showed a statistically significant gain over the control group in flexion and extension of the *left* arm. Two weeks after the training period, both groups were again tested, and it was found that the experimental group had lost their superiority over the control group in their left arm performance. From the data obtained, it was concluded that the increase of muscular performance in the unexercised arm of the experimental group was due to the transfer effects of exercise.

To give further support to his conclusions, Slater-Hammel cites the action current studies by Davis (1-3), which indicate that even a very simple response involves a widespread pattern of muscular activity. These studies show that the simplest sort of voluntary movement in one member of the body is accompanied by muscular activity in all four members of the body; i.e., in an extension of the left foot, with subject re-

(Continued on Page 26)

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clining, there is not only the normal muscular activity in the extensor muscles of that member, but there is also concurrent muscular activity in the muscles of the other foot and the two arms. While this musclar activity in limbs which are apparently at rest is considerably less than that of the active member, it is, nevertheless, substantial. Although the theoretical implications in Davis' findings imply a conception of muscle activity quite unlike that of general kinesiology, they do give insight into the mechanism through which transfer of exercise occurs.

In view of the consistent results obtained in transfer studies, there is little doubt that the concurrent muscular activity in regions remote from the locus of activity is great enough to constitute a form of muscular exercise with subsequent improvement of muscular performance. It is the suggestion of this paper that the transfer effects of exercise could well be utilized by corrective therapy. On the positive side, the fact that voluntary exercise in one part of the body produces a widespread pattern of muscular action in other regions of the body offers the corrective therapist the opportunity of exercising muscles which cannot be exercised directly because of joint immobilization, etc. On the negative side, the corrective therapist should probably be careful not to give exercises which would produce remote activity in musculatures requiring absolute rest.

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COOPERATE TO REHABILATE—(Con't.)

TUBERCULOSIS SERVICE

The Tuberculosis Service offers an excellent proving ground for every section of the Physical Medicine Rehabilitation Service. The Chief of the Tuberculosis Service recognizes the fact that a large percentage of the tuberculosis patients will be unable to pursue the occupations which they followed at the onset of their disease, and welcomes the cooperation of the Physical Medicine Rehabilitation Service in overcoming this problem. Due to the length of their hospitalization, it is important to keep their mental attitude forward looking and cheerful.

Each member of the Medical Staff who has any contact with the veteran who has tuberculosis, should constitute himself a salesman for the Veterans Administration Tuberculosis Rehabilitation Center at Swannanoa, North Carolina. Constant reminders of the advantages Swannanoa has to offer in complete rehabilitation will raise the patient's morale, and increase his interest and cooperation in any prescribed early therapy.

On the average tuberculosis ward in a GM&S hospital, the Physical Medicine Rehabilitation Service can be successfully used to carry out the following prescriptions:

1. Regular treatments prescribed for specific conditions.
2. Relaxation and bed posture.
3. Correct breathing exercises.
4. Graduated walking exercises.
5. Specific exercises, approved by the Chief of the Tuberculosis Service to replace the graduated walking exercises during inclement weather.
6. Work tolerance.
7. Occupational try outs and early training.
8. Educational therapy to prepare the patient for any occupational change deemed necessary. (Sixty-five percent of our tuberculosis patients are taking Educational Therapy at the present time.)
9. Taking an active part in the orientation program now being conducted for the tuberculosis patients.

On the tuberculosis wards our relaxation and bed positioning program is not given indiscriminately to all patients as a group activity. We have found that results are better on an individual treatment basis. These cases are selected by the Chief of the Tuberculosis Service, and each case is discussed with the therapist prior to initiating the program.

The graduated Walking Exercise Program is on a strict prescription basis, and all increases are made by the ward physician.

Occupational Therapy and Manual Arts Therapy have an extensive work tolerance program on the tuberculosis wards with enough variety of projects to keep the long range patient interested during his period of hospitalization. The ward doctor approves all projects, increases or decreases time limits, and goes over records periodically with the therapist to re-evaluate the patient.

Educational Therapy is used extensively on the tuberculosis wards, and the results are well worth mentioning. The average educational level of our tuberculosis patients is that of the third grade. Over

(Continued on Page 27)

half of these patients are taking advantage of the educational opportunities offered by this service, and the results are very gratifying. Four of this group have received their high school diplomas or Certificates of Equivalence, and are now attending college. Several illiterates have been taught to read and write, and as a whole, the group has benefitted from this type of therapy and become more cooperative patients.

Dr. William Townsend, Chief of the Tuberculosis Service, stated that he considered the concerted work of the Physical Medicine Rehabilitation Sections on the Tuberculosis Wards was to a large extent responsible for the reduction in the number of tuberculosis patients leaving the hospital against medical advice.

MEDICAL REHABILITATION BOARD

There has been considerable discussion as to the practicability of a Medical Rehabilitation Board in a GM & S hospital. Some argue that the rapid turnover of the average case does not allow enough time to warrant board action.

We are not in accord with this line of thinking, and shall endeavor to set forth some of our reasons.

As you know, we have a great number of disabling accident cases admitted to our GM & S hospitals whose residuals make it impossible for them to return to their pre-accident occupation. It is true, and we readily concur, that in most cases there is insufficient time to even attempt to rehabilitate these cases; however, we do have time to start the machinery moving toward the goal of complete rehabilitation.

Through complete cooperation of all members of the Board, we can, in most cases, complete the preliminary work, recommended a post-accident occupation compatible with the patient's disability, and refer all this material to the State Rehabilitation Board on non-service-connected cases prior to the patient's discharge. The close team work between the hospital board and the state organization is producing results, and in almost every instance the State Rehabilitation Board has been able to contact the patient soon after discharge, and pick up where the hospital Medical Rehabilitation Board left off.

The same procedure is followed on the service-connected cases with the exception that hospital board records are referred to the patient's respective Regional Office for action.

This, to our way of thinking, is justification for the board, and, if you are receiving the close cooperative team work from all members of your board and the state organization's that we are getting, you will have no trouble convincing the skeptics of the Board's value to the hospital, community, and above all, to the patient.

FINAL SUMMARY

The purpose of this article is neither to claim originality for any of the techniques or procedures outlined, nor to take issue with any literature that has been published covering Physical Medicine, but for the sole purpose of disseminating some of the procedures and practices used at this hospital, and to reemphasize the importance of a complete understanding and cooperative spirit throughout the Physical Medicine Rehabilitation Service.

This program, in our opinion, is an excellent example of what can be accomplished when all sections of the Physical Medicine Rehabilitation Service join forces and work as a team, and in close cooperation with the Medical Staff, nurses, dietitians, and attendants. A successful Rehabilitation Program is built around two words—TEAM WORK! So, cooperate to rehabilitate.

NOTE: "Published with permission of the Chief Medical Director, Veterans Administration, who assumes no responsibility for the opinions expressed or the conclusions drawn by the author."

Calendar of Events

American Association of Rehabilitation Therapists
Phoenix Hotel, Lexington, Ky.
June 20, 21, 22, 1951.

American Physical Therapy Association
Hotel Colorado, Glenwood Springs, Colo.
June 17 to 22, 1951

Association for Physical and Mental Rehabilitation
Hotel Hollywood Roosevelt, Los Angeles, Cal.
July 3 to 6, 1951

American Congress of Physical Medicine
Shirley-Savoy Hotel, Denver, Colo.
Sept. 4 to 8, 1951

American Occupational Therapy Association
Wentworth-by-the-Sea Hotel, Durham, N. H.
Sept. 8 to 15, 1951

The National Society for Crippled Children and Adults, Inc.
Palmer House, Chicago, Illinois
October 3 to 6, 1951

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Place: Hotel Hollywood Roosevelt

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FOR FURTHER INFORMATION CONTACT

MR. HARRY HART, Convention Chairman

3607 OCEAN VIEW AVE.

VENICE, CALIFORNIA

BOOK REVEWS

The Physiology of Work and Play. By SARA R. RIEDMAN, Department of Health and Physical Education, Brooklyn College. Pp 548 with 158 illustrations. The Dryden Press, New York, N. Y. 1950 Price $4.90.

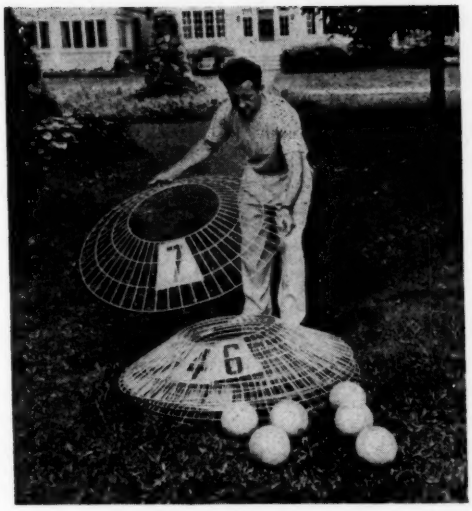
The book ranges from the basic physiology of muscle to the complex but practical application of that muscle physiology of movement. The author has done a commendable job of bringing together into one text what often come in two texts viz., a text of neuromuscular physiology and a text of the physiology of locomotion with little or no basic muscle physiology. The author has written an excellent chapter on the coordination of motion and part of the book deals with the organic adjustments to the needs of exercise, e.g., heart, respiratory, etc. The author does not deal with the clinical problems of therapeutic exercise. However the book is excellent as a basic text in kinesiology. The book may be of value to students of Corrective Therapy and those in Corrective Therapy who may wish to fill out a complete library.

COUNSELING THE HANDICAPPED IN THE REHABILITATION PROCESS, by Kenneth W. Hamilton, *Associate Professor of Social Administration*, Ohio State University, 296 pp., with 4 illustrations. Cloth $3.50. The Ronald Press Company, New York, 1950.

The book offers a wealth of useful material for those who are interested or engaged in the field of rehabilitation. It should prove an invaluable aid to all those concerned in understanding the problems related to the nature and purpose of rehabilitation. Two chapters that may be singled out in this pedantic study are entitled "The Rehabilitation Center" and "The Disabled Worker on the Job" because of the crystalization of a subject matter vast in scope. The author never loses sight of the human dignity of the disabled individual nor of the fact that vocational adjustment can best be attained where employment is on the highest level of competitive performance The book is recommended as a guide.

The Blinded Bilateral. By RALPH J. ANSLOW. Paper. The Kessler Institute of Rehabilitation, West Orange, N. J. 1950. Price 75 cents.

The author a bilateral arm amputee is also totally blind. He described in a fairly simple way the job of daily living which can be done successfully by the blinded bilateral arm amputee. There are four sections, liberally sowed with illustrations and exact instructions. The booklet devotes itself to the task of describing a way of daily living habits including eating, drinking, washroom activities and methods of adjusting a hook on the prosthetic arm, etc. This booklet may be of value and interest to those training and assisting the blind bilateral arm amputee.



CODEBALL
"Kicking Golf"

The fast-growing game for amusing and exercising groups, large or small, with low cost upkeep.

It is of great therapeutic value as was demonstrated in an exhibition held on April 9th last at Bronx Veterans Administration Hospital, Kingsbridge Road, New York.

A number of foursomes, composed of patients, played the game at that time and the reaction of the Medical Personnel was very favorable as to its therapeutic value.

We will gladly send you a brochure giving a description of the game and the rules for playing it as well as 20 other endorsements and price list free upon request.

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THE PRESIDENT SPEAKS

Selection of leadership should be one of the foremost thoughts in our minds as our Representative Assembly members prepare to participate in the Los Angeles Convention this July. There are three representatives from each of the six geographical areas. It is the responsibility of the membership to see that these representatives are informed regarding candidates for office in the coming year.

One major problem has been acknowledgment of men with unusual ability who are not prone to exhibit their skill. In presenting some candidates who are comparatively unknown, it must be remembered that our Association is relatively young and, with increase in age, more opportunities will be given for better acquaintanceship among the membership. The best means of acquainting yourself with other members is through attendance at the conventions. If it is impossible for a member to attend conventions because of distance, then it is reasonable to assume that he will take advantage of a national meeting when located in his respective area. The plan of rotating the convention from area to area has been one of the outstanding features in gaining local participation. These members are given an opportunity to participate; to meet their officers, their representative assembly and the membership at large; to observe the functions of the National Organization.

In the development of local chapters there will be a natural screening for local leadership. Through this method of selecting and fostering leaders, the local organization will be of invaluable service to the parent organization. Leadership at the local level may be tried and tested prior to consideration for more responsibility in the Association.

Many members have been nominated from time to time but were unable to accept nomination due to other responsibility. It is recommended that these men be reconsidered for future office. Another eligible group comprises those who have held and excelled in one or more positions but have not been selected to carry additional responsibility. Other leadership possibilities for higher office are the present officers who, as a result of their experience, have become better qualified.

Leadership is based on the following qualities: sound action, good judgment, sincerity, foresight, directness of purpose, administrative ability, accomplishment, alertness in the sense of awareness of present trends that might enhance or endanger membership. Other qualities of equal importance are the ability to recognize leadership in others and see that it is utilized in the best interests of the Association, to seek advice and prosper by it, to place Association first above personal ambition, to be diplomatic and reasonable in business operations of the organization, and to practice at all times the principles inherent in our Democratic Society.

NEWS AND COMMENTS

Office of Vocational Rehabilitation
Washington 25, D. C.

Governor Paul A. Dever of Massachusetts (left) congratulates Dr. Rudd (center) upon being appointed Chairman of the Rehabilitation Commission.

Dr. J. L. Rudd, Chief Physical Medicine Rehabilitation at West Roxbury Veterans Administration Hospital, has been appointed by Governor Paul A. Dever of Massachusettes, as Chairman of the Rehabilitation Commission, Department of Industrial Accidents. His duties are as follows: the Rehabilitation Commission is to inspect and certify public and private rehabilitation facilities, to approve a list of qualified rehabilitation physicians and to continously study the problems of rehabilitation of the industrially severly injured.

Dr. Rudd is an enthusiastic supporter of Corrective Therapy and will include its activities in his program of rehabilitation. We congratulate him upon his appointment and wish to extend any assistance we may be able to give him.

New VA Medical Director

Admiral Joel T. Boone, USN, Retired, took the oath of office as chief medical director of the Veterans Administration on February 28, 1951, in the VA Central Office, Washington, D. C. Supreme Court Justice Robert J. Jackson admistered the oath in the presence of Administrator Carl R. Gray, Jr., and other top government officials. Admiral Boone pledged complete support and strengthening of the Deans Committee program, which provides medical training and research for VA doctors. He also stated that the basic VA policy is "top-notch medical care for veterans."

Application for Hotel Reservations

You are requested to make your hotel reservation at the earliest possible date for the Fifth Annual Convention of the Association for Physical and Mental Rehabilitation in Hollywood, California, July 3, 4, 5, 6, 1951. If possible, arrange for the occupancy of a double room. Special accommodations for members and guests will be arranged by writing Mr. Fred A. O'Banion direct. The hotels and rates are listed below.

Hollywood Roosevelt Hotel
7000 Hollywood Blvd.
_____Single $8
_____Twin or Dbl. Bed $10
_____Poolside Twins $12
_____Suites $16 to $22
Note: $2 extra for additional person in any room.

Hollywood Plaza Hotel
1637 N. Vine St.
_____Single $4.50 to $8.00
_____Double
_____Twins or Dbl. Bed $7.00

Hollywood Drake Hotel
6724 Hollywood Blvd.
_____Single $3 to $6
_____Double $3.50 to $6.50
_____Twins $4.50 to $7.00

Colonial Hotel
1730 N. Western Ave.
_____Double $5.50
_____Twins $6.50

Hollywood Knickerbocker Hotel
1714 N. Ivar St.
_____Double $7
_____Twins $9
_____Suites $10 to $18

Franciscan Motor Hotel
2630 N. Highland Ave.
_____Double $7
_____Twins $8

HOTEL RESERVATION BLANK

It may be torn out of this issue of the Journal. All reservations must be received not later than Monday June 25, 1951.
FRED A. O'BANION, 624 Peach Ave., Van Nuys, Calif.

Please reserve (type)_____room for_____person(s)
at _____ *rate, at _____ Hotel.
I desire to room with_____
NAME_____
ADDRESS_____
CITY_____STATE_____
Will arrive: Date_____Hour_____

Note: You will receive direct confirmation from the Hotel. Rooms will be held to 5 p.m. on arrival date. In order to guarantee arrival after 5 p.m., it is necessary to send a deposit covering the first night's lodging.

Fifth Annual Convention

Association for Physical and Mental Rehabilitation
Scientific and Clinical Sessions

Registration Blank

Enclosed Registration Fee $10.00 which includes the official Banquet.

Please make Checks or Money Orders payable to: Association for Physical and Mental Rehabilitation and mail to Fred A. O'Banion, Chairman, Registration Committee — 6624 Peach Ave., Van Nuys, California.

Name_____

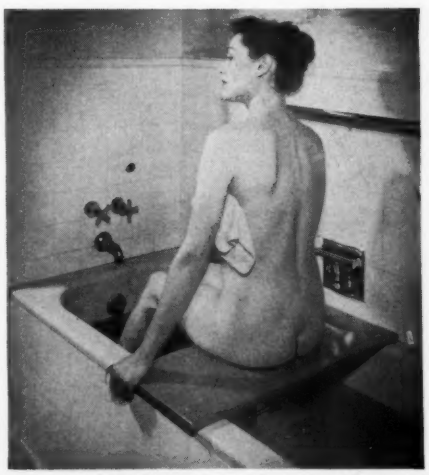
Street_____

City_____

Place of employment_____

The Convention dates are July 3, 4, 5, 6, 1951.
Place: Hollywood Roosevelt Hotel, Hollywood, Calif.

Please Fill Out And Return As Soon As Possible



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The enthusiastic response with which this equipment has been received by all interested in rehabilitation, has established this bench, in the opinion of the medical profession, to be definitely beneficial to many patients under their care.

The use of this bench relieves the patient of undue exertion and possible further injury, and also helps to restore self reliance and independence, an important psychological factor.

The ROYALE bench is now being used in hospitals, clinics, sanitariums and private homes with gratifying results. It relieves the nurse of the strenuous task of lifting the patient.

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Memphis, Tenn.

Application For Active Membership

ASSOCIATION FOR PHYSICAL AND MENTAL REHABILITATION

NAME ..... DATE .....

ADDRESS .....

POSITION TITLE .....

LOCATION .....

FORMAL EDUCATION .....
(College) (Degree) (Major Subjects)
(REQUIRED—A MAJOR IN PHYSICAL EDUCATION)

TRAINING IN PHYSICAL REHABILITATION .....

.....

EXPERIENCE IN PHYSICAL AND/OR MENTAL REHABILITATION .....
(Required—One Year Under Direct Supervision of a Doctor of Medicine)

CONTRIBUTION .....
i.e. Publications, Studies, Surveys or Research in the field of Physical or Mental Rehabilitation

REFERENCES: 1. .....
Name Position Location

2. .....

.....
Signature of Applicant

NOTE: REQUIREMENTS LISTED ABOVE ARE FOR ACTIVE MEMBERSHIPS

APPLICATION FOR ASSOCIATE MEMBERSHIP
ASSOCIATION FOR PHYSICAL AND MENTAL REHABILITATION

NAME .....

ADDRESS .....

POSITION TITLE .....

LOCATION .....

PROPOSED BY .....